SMOKING AND LEVEL OF NICOTINE DEPENDENCY IN LOCAL POPULATION OF ARAR REGION, SAUDI ARABIA

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ABSTRACT

The aim of the present study is to assess the hazards of smoking, with a special reference to nicotine dependency, Coronary Obstructive Pulmonary Disease and Asthma, in a remote tribal area located in Northern Saudi Arabia, to collect the data symptoms/diagnosis over a last 10 year period and to counsel the habitual smokers to quit smoking as soon as possible. For this purpose, 50 smokers from people comprising of both sexes aging between 15-85 years were selected to conduct a retrospective case control study. The subjects were given questioners related to the topic and were tested for Nicotine dependence by the Fagerstrom Tolerance Test as a diagnostic tool. The data was accumulated and statistics was applied. In our study we asked about attempts taken to quit smoking and the data shows that 9 persons tried to quit smoking one time, 26 more than one time and 15 have never tried to quit smoking. This may be due to the problems they came through during quitting this habit. For this the smokers should consult with health care providers about programs and products that can help quit smoking. Also, they should stay away from secondhand smoke, which is smoke in the air from other people smoking. In the
end we tried to convince our subjects to quit smoking but only 22 agreed to quit smoking. Further studies like this can be conducted in other nearby areas so that some people are convinced to quit smoking.

**KEYWORDS:** Smoking, COPD, Nicotine dependency, Arar region.

**INTRODUCTION**

Smoking is a dangerous habit which increases risks of chronic obstructive pulmonary disease, coronary heart disease, stroke, lung cancer, suppression of the gingival bleeding response, plaque accumulation and overall diminished health with lot of expenses, beginning from purchasing of cigarettes leading to the increased cost of health care utilization.[1,2] Smoking weakens man sperm and in woman it is more dangerous. Some of the risks include low chances of pregnancy, premature child birth, still birth, low birth weight and sudden infant death syndrome. Woman who have crossed child bearing age have increased risks of breaking bones and cataract.[3] If a person quits smoking, after one year risk of heart attack is reduced much and after five years post quitting it equalizes that of non-smoker. Similarly risk for lung cancer, pneumonia and respiratory failure is also reduced.[4,5] In tobacco smoke there are more than hundred harmful chemicals some of which include hydrogen cyanide, carbon mono oxide and ammonia.[6]

In a country like Saudi Arabia with traditional norms and values, it is difficult to include females and uneducated persons. Global Youth Tobacco Surveys (GYTS) are being conducted at different intervals by WHO and Canadian Public Health Association, but it was limited to students or people working in Health Care Units. Further, these studies are mostly carried out in western region or Riyadh Province. Though we could be able to collect a very small range of data but it belongs to totally untouched population i.e. remote area of Northern Border Province. The surveys shows that about 160 million US Dollars are spent on tobacco purchase, while 167 million US Dollars are spent on tobacco-related health problems per year.[7] The most people whom we tried to quit smoking find it difficult because of nicotine dependency. Fagerstrom Tolerance Test is a method of detection or calculation of Nicotine dependency.[8,9] By this method we can find nicotine dependency in individuals simply asking certain questions which is compliant to subjects either elderly or young.
MATERIALS AND METHODS

Population and ethics
We genotyped 50 male and female life-long smokers who were in a stable phase excluding subjects with chronic lung diseases (asthma, bronchiectasis, lung cancer, interstitial lung diseases) and/or chronic extra pulmonary disorders such as, diabetes, arterial hypertension, cancer, immune diseases and cardiac, hepatic or renal failure.

Diagnostic Tools
A prepared structured questionnaire including age, sex, smoking period time, smoking amount, marital status, having children less than 12 years of age at home, consulting doctor regularly or not, education level, COPD situation, asthma situation and income level. The other tool was Fagerstrom Tolerance Test to find the Nicotine dependency level.

RESULTS
It was found that all the subjects (41 male and 9 female) belong to uneducated or up to middle school level of education. Nearly 82% were married and 46% of persons had children less than 12 years of age at their home and 84% visited doctors regularly while 16% have occasional visits. 18% tried to quit smoking once and 52% for more than one time, while 30% never tried at all. 44% agreed to quit smoking by convincing. Other important points like age span of subjects are mentioned in Table 1, time period of smoking in Table 2 and frequency of smoking in Table 3. Figure 1 shows occurrence of COPD/Asthma and Figure 2 express the data collected by Fagerstrom Test for Nicotine dependency.

Table 1: Age span in years.

<table>
<thead>
<tr>
<th>Age</th>
<th></th>
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<tbody>
<tr>
<td>15-25</td>
<td>2</td>
</tr>
<tr>
<td>26-35</td>
<td>2</td>
</tr>
<tr>
<td>36-45</td>
<td>9</td>
</tr>
<tr>
<td>46-55</td>
<td>12</td>
</tr>
<tr>
<td>56-65</td>
<td>10</td>
</tr>
<tr>
<td>66-75</td>
<td>12</td>
</tr>
<tr>
<td>76-85</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2: Time period of Smoking in years.

<table>
<thead>
<tr>
<th>Total years of smoking</th>
<th></th>
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<tbody>
<tr>
<td>10&lt;</td>
<td>10</td>
</tr>
<tr>
<td>11-20</td>
<td>29</td>
</tr>
<tr>
<td>21-30</td>
<td>10</td>
</tr>
<tr>
<td>31-40</td>
<td>1</td>
</tr>
<tr>
<td>40&gt;</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Smoking amount.

<table>
<thead>
<tr>
<th>Packs per day</th>
<th>1\4&lt;</th>
<th>1\2&lt;</th>
<th>1&lt;</th>
<th>1-2</th>
<th>2&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>19</td>
<td>6</td>
<td>15</td>
</tr>
</tbody>
</table>
DISCUSSION

Chronic obstructive pulmonary disease abbreviated to COPD is one of the types of severe lung disease that gradually produce difficulty in breathing. COPD includes emphysema and chronic bronchitis.\textsuperscript{10,11} A person suffering from COPD have less air flow through the airways or the tubes carrying oxygen in and bringing CO\textsubscript{2} out of lungs. This is due to the loss of ability of airways and tiny air sacs in the lungs to stretch and shrink back, the destruction, thickening, irritation and inflammation of the walls between some of the air sacs and the airways make more mucus than usual, which can clog them and block air flow.\textsuperscript{12,13}

In the early stages of COPD, there may be no symptoms, or only have mild symptoms, such as nagging cough (often called "smoker's cough"), shortness of breath, especially with physical activity, wheezing (a whistling sound when you breathe) and tightness in the chest. As the disease gets worse, symptoms may include feeling trouble during breathing or talking, blue or gray lips and/or fingernails (a sign of low oxygen levels in your blood), trouble with
mental alertness, fast heartbeat, swelling in the feet and ankles and weight loss.\cite{14} The severity of symptoms depends on the extent of lung damage. If the smoking is continued, the damage becomes worse. A study shows that among 15 million U.S. adults with COPD, 39% continue to smoke.\cite{14}

The relation of smoking and COPD can be detected by the figure that COPD is the disease which is the number 3 killer in The United States and smoking accounts for as many as 9 out of 10 COPD-related deaths.\cite{15} Previous studies shows that COPD most often occurs in people age 40 and older with a history of smoking (either current or former smokers). However, as many as one out of six people with COPD never smoked.

Smoking during childhood and teenage years can slow how lungs grow and develop. This can increase the risk of developing COPD in adulthood.\cite{16}

This study was conducted on 50 cases of smokers all belonging to sub-urbs of Arar region of both sexes aging between 15-85 years but most cases were of 46-75 years (Table 1). The study exhibited that mostly male have smoking habit 4.5 times greater than female. Person having lower level of education are found to be prone towards smoking. Same is the ratio of married and un-married people. Possible the married persons have more tensions in life, so this may be a reason of smoking. Mostly the people don’t care about having children less than 12 years of age at home. Nearly 46% of persons had children less than 12 years of age at their home in the data collected. May be these people are unaware of the dangerous smoke of cigarettes affecting other people also. Education level plays an important role, as the figures shows that all the population belongs to either middle school level or even less than that. Source of income was not an effective element but economic status plays certain role because 43 out of 50 people belong to middle class and rest 7 belonged to low income level. An interesting fact is that 42 out of 50 people visited doctors regularly and 8 have occasional visits while all subjects have free medical facilities.

The relation of COPD and smoking can be judged by our data that out of 50 smokers, 34 individuals suffered from COPD alone and 16 suffered from COPD and asthma both (Figure 1).

Smoking frequency and intensity can be judged by the data looking at parameters like 46 subjects smoke daily while 4 of them smoke occasionally. Other parameter is total years of
smoking which shows that only one subject has crossed 31-40 years of smoking, 10 lie in category of 21-30 years, the largest figure i.e. 29 lie in 11-20 years category and 10 subjects haven’t completed 10 years of smoking (Table 2). Another parameter is number of packs of cigarettes they take daily. Among 50 subjects, 5 consume one-fourth pack daily, 4 takes one-half pack, 19 takes more than half but not one pack, 6 consume one pack, 15 takes more than 1 but less than 2 and only one subject takes more than two packs of cigarettes (Table 3).

Figure 1 shows that 34 individuals have COPD and 16 having both COPD and Asthma, which means 100% of the tested population suffered from COPD. The best way of prevention from COPD is to never to smoke and if started smoking, then quit immediately. In our study we asked about attempts taken to quit smoking and the data shows that 9 persons tried to quit smoking one time, 26 more than one time and 15 have never tried to quit smoking. This may be due to the problems they came through during quitting this habit. For this the smokers should consult with health care providers about programs and products that can help quit smoking. Also, they should stay away from secondhand smoke, which is smoke in the air from other people smoking.[17]

Fagerstrom Tolerance Test is a simple method of detection or calculation of Nicotine dependency. This test was applied to the test population and the result is mentioned in Figure 2. The result divides the population in terms of very low, low, medium, high and very high Nicotine dependence. The number of subjects in each limit is 4, 21, 9, 13 and 3 respectively (Figure 2). This clearly indicates that this is the group which is which is consuming less than one pack daily, carried on smoking for more than 11 and less than 20 years and have made more than one attempt of smoking. This size of population is on low nicotine dependency, affected by COPD and they can be motivated to quit smoking. The literature survey indicates that quitting smoking is the most important first step for the treatment of COPD. Avoiding secondhand smoke is also critical. Other lifestyle changes and treatments include a special meal plan with smaller, more frequent meals; resting before eating; and/or taking vitamins and nutritional supplements, a special activity plan to help strengthen the muscles used for breathing, medicines such as bronchodilator, oxygen therapy, which can help people who have severe COPD and low levels of oxygen in their blood to breathe better. Even though there is no cure for COPD, these lifestyle changes and treatments can help you breathe easier, stay more active and slow the progress of the disease.[18] In the end we tried to convince our
subjects to quit smoking but only 22 agreed to quit smoking. Further studies like this can be conducted in other nearby areas so that some people are convinced to quit smoking.

CONCLUSION
The result clearly indicates that 32% of smokers belong to high nicotine dependency level and 100% of them suffer from COPD. So the best way of prevention from COPD is to never to smoke and if started smoking, then quit immediately, as if nicotine dependency exists then it is difficult to quit smoking. Smokers should consult with health care providers about programs and products that can help quit smoking. Also, they should stay away from secondhand smoke, which is smoke in the air from other people smoking.

Every effort should be made to convince people for quitting smoking. During our study 44% of subjects were agreed to quit smoking. Further studies like this can be conducted in other nearby areas so that some people are convinced to quit smoking.

REFERENCES


